Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1. (Previously Presented) A method of decomposing nitrogen dioxide (NO_2) to nitrogen monoxide (NO) in an exhaust gas of a lean-burn internal combustion engine, which method comprising:

adjusting the C1 hydrocarbon : nitrogen oxides (C1 HC:NO_x) ratio of the exhaust gas to from 0.1 to 2;

contacting the gas mixture from the adjusting step with a particulate acidic refractory oxide selected from the group consisting of zeolites, tungsten-doped titania, silica-titania, zirconia-titania, gamma-alumina, amorphous silica-alumina and mixtures of any two or more thereof, wherein the particulate refractory oxide supports a metal or a compound thereof, which metal is selected from the group consisting of rhodium, palladium, iron, copper and mixtures of any two or more thereof; and

passing the effluent gas from the contacting step to atmosphere.

2. (Cancelled)

3. (Previously Presented) The method according to Claim 1, further comprising adjusting the C1 HC:NO_2 ratio to from 0.05 to 1.

4. (Previously Presented) The method according to claim 1, wherein the step of adjusting the C1 HC:NO_x ratio in the exhaust gas occurs at temperatures between about 250°C and about 500°C.

5. (Cancelled)

6. (Cancelled)

7. (Withdrawn) An exhaust system for an internal combustion engine, which system comprises:

a catalyst for decomposing nitrogen dioxide (NO_2) to nitrogen monoxide (NO) with a suitable reductant; and

means, in use, for adjusting a C1 hydrocarbon : nitrogen oxides (C1 HC:NO_x) ratio in an exhaust gas upstream of the catalyst to from 0.1 to 2, which catalyst consisting of a particulate acidic refractory oxide selected from the group consisting of zeolite, tungsten-doped titania, silica-titania, zirconia-titania, gamma-alumina, amorphous silica-alumina and mixtures of any two or more thereof.

8. (Currently Amended) The ~~exhaust system~~ method according to claim ~~17~~, wherein the particulate refractory oxide is a zeolite selected from the group consisting of ZSM-5, β-zeolite, Y-zeolite, mordenite, and mixtures of any two or more thereof.

9. - 27. (Cancelled)

28. (Currently Amended) The ~~exhaust system~~method according to claim ~~126~~, wherein the ~~control means adjusts~~ step of adjusting the C1 HC:NO_x ratio is effected in response to one or more of the following inputs: exhaust gas temperature; catalyst bed temperature; rate of exhaust gas mass flow; NO_2 in the exhaust gas; manifold vacuum; ignition timing; engine speed; throttle position; lambda value of the exhaust gas composition; quantity of fuel injected in the engine; position of an exhaust gas recirculation valve; and boost pressure.

29. (Currently Amended) The ~~exhaust system~~method according to claim 28, wherein the ~~control means~~ step of adjusting the C1 HC:NO_x ratio is operated according to stored look-up tables or an engine map in response to the at least one input.

30. (Currently Amended) The ~~exhaust system~~method according to claim ~~179~~, wherein the ~~means for~~ step of adjusting the C1 HC:NO_x ratio comprises at least one of: ~~means for~~ injecting a reductant into the exhaust gas; ~~means for~~ adjusting an ignition timing of at least one engine cylinder; ~~means for~~ adjusting fuel injection timing of at least one engine cylinder; ~~means for~~ adjusting an engine air-to-fuel ratio; and ~~means for~~ adjusting an exhaust gas recirculation rate.

31. (Currently Amended) The ~~exhaust system~~method according to claim ~~17~~, further comprising contacting the exhaust gas with ~~wherein the NO_2 decomposition catalyst is disposed downstream of~~ an oxidation catalyst~~, wherein the oxidation catalyst comprises~~ comprising at least one PGM, wherein the NO_2 decomposition catalyst is disposed downstream of the oxidation catalyst.

32. (Currently Amended) The ~~exhaust system~~method according to claim 31, further comprising contacting the exhaust gas with a particulate filter disposed between the oxidation catalyst and the NO_2 decomposition catalyst.

33. (Cancelled)

34. (Cancelled)

35. (Currently Amended) The ~~exhaust system~~ method according to claim 32, wherein the NO_2 decomposition catalyst is disposed on a downstream end of the filter.

36. (Cancelled)

37. (Currently Amended) The ~~exhaust system~~ method according to claim 31~~30~~, wherein the adjusting step comprises injecting a reductant ~~injecting means introduces the reductant~~ into the exhaust system upstream of the NO_2 decomposition catalyst and downstream of ~~a PGM~~ the oxidation catalyst.

38. - 41. (Cancelled)

42. (Currently Amended) The ~~exhaust system~~method of claim 31, wherein the at least one PGM metal is selected from the group consisting of platinum, palladium, and mixtures thereof.

43. (New) A method of decomposing nitrogen dioxide (NO_2) to nitrogen monoxide (NO) in an exhaust gas of a lean-burn internal combustion engine, which method comprising:

adjusting the C1 hydrocarbon : nitrogen oxides (C1 HC:NO_x) ratio of the exhaust gas to from 0.1 to 2;

contacting the gas mixture from the adjusting step with a catalyst consisting of a particulate acidic refractory oxide selected from the group consisting of zeolites, tungsten-doped titania, silica-titania, zirconia-titania, gamma-alumina, amorphous silica-alumina and mixtures of any two or more thereof; and

passing the effluent gas from the contacting step to atmosphere.

44. (New) The method according to Claim 43, further comprising adjusting the C1 HC:NO_2 ratio to from 0.05 to 1.

45. (New) The method according to claim 43, wherein the step of adjusting the C1 HC:NO_x ratio in the exhaust gas occurs at temperatures between about 250°C and about 500°C.

46. (New) The method according to claim 43, wherein the particulate refractory oxide is a zeolite selected from the group consisting of ZSM-5, β-zeolite, Y-zeolite, mordenite, and mixtures of any two or more thereof.

47. (New) The method according to claim 43, wherein the step of adjusting the C1 HC:NO_x ratio is effected in response to one or more of the following inputs: exhaust gas temperature; catalyst bed temperature; rate of exhaust gas mass flow; NO_2 in the exhaust gas; manifold vacuum; ignition timing; engine speed; throttle position; lambda value of the exhaust gas composition; quantity of fuel injected in the engine; position of an exhaust gas recirculation valve; and boost pressure.

48. (New) The method according to claim 47, wherein the step of adjusting the C1 HC:NO_x ratio is operated according to stored look-up tables or an engine map in response to the at least one input.

49. (New) The method according to claim 43, wherein the step of adjusting the C1 HC:NO_x ratio comprises at least one of: injecting a reductant into the exhaust gas; adjusting an ignition timing of at least one engine cylinder; adjusting fuel injection timing of at least one engine cylinder; adjusting an engine air-to-fuel ratio; and adjusting an exhaust gas recirculation rate.

50. (New) The method according to claim 43, further comprising contacting the exhaust gas with an oxidation catalyst comprising at least one PGM, wherein the NO_2 decomposition catalyst is disposed downstream of the oxidation catalyst.

51. (New) The method according to claim 50, further comprising contacting the exhaust gas with a particulate filter disposed between the oxidation catalyst and the NO_2 decomposition catalyst.

52. (New) The method according to claim 51, wherein the NO_2 decomposition catalyst is disposed on a downstream end of the filter.

53. (New) The method according to claim 50, wherein the adjusting step comprises injecting a reductant into the exhaust system upstream of the NO_2 decomposition catalyst and downstream of the oxidation catalyst.

54. (New) The method of claim 50, wherein the at least one PGM metal is selected from the group consisting of platinum, palladium, and mixtures thereof.

55. (New and Withdrawn) An exhaust system for an internal combustion engine, which system comprises:

a catalyst for decomposing nitrogen dioxide (NO_2) to nitrogen monoxide (NO) with a suitable reductant; and

means, in use, for adjusting a C1 hydrocarbon : nitrogen oxides (C1 HC:NO_x) ratio in an exhaust gas upstream of the catalyst to from 0.1 to 2, which catalyst comprising a particulate acidic refractory oxide selected from the group consisting of zeolite, tungsten-doped titania, silica-titania, zirconia-titania, gamma-alumina, amorphous silica-alumina and mixtures of any two or more thereof, wherein the particulate refractory oxide supports a metal or a compound thereof, which metal is selected from the group consisting of rhodium, palladium, iron, copper and mixtures of any two or more thereof.